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IRISH CRUSTACEA OSTRACODA.

BY

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IRISH CRUSTACEA OSTRACODA.

BY CANON A. M. NORMAN, M.A., D.C.L., LL.D., F.R.S., F.L.S.

THE object of this paper is to bring together all that is known respecting the representation of the order of Crustacea called Ostracoda in the Irish fauna.

The great extent of fresh water in Ireland ought to make that country very rich in species of Entomostraca which are not marine; but very little has been done among the fresh-water forms, although that little has brought to light species which have hitherto escaped detection elsewhere in the British Isles. It may be hoped that the publication of this list will induce some young naturalists in Ireland to take up this interesting study.

In recording habitats, I have given my own authority for some habitats where the species has been also found by other observers; because in thus acting I am giving confirmation to the record of localities already mentioned in Prof. Brady's and my monograph. I have looked through a great deal of material which I had not had time to examine when that monograph was published. This material has been for the most part collected by myself; but the Youghal sand was given me by my late friend, Dr. Jeffreys; the Aran sands were collected by the late Mr. George Barlee, and the Lough Foyle material gathered by the late Mr. Edward Waller.

The following publications have reference to Irish Ostracoda; and in the monographs are to be found very numerous Irish records, which are embodied in this paper:—

1. BRADY, G. S.—A Monograph of the Recent British Ostracoda. *Trans. Linn. Soc.*, vol. xxvi., 1868, p. 353.
2. BRADY, G. S., and D. ROBERTSON.—Notes on a Week's Dredging in the West of Ireland. *Ann. and Mag. Nat. Hist.*, ser. 4, vol. iii., 1869, p. 353.
3. BRADY, G. S., and D. ROBERTSON.—Contributions to the study of the Entomostraca. VI. On the distribution of the British Ostracoda. *Ann. and Mag. Nat. Hist.*, ser. 4, vol. ix., 1872, p. 48.
4. MALCOMSON, S. M.—Recent Ostracoda of Belfast Lough. *Proc. Belfast Nat. Field Club*, Appendix 1884-1885, p. 259.
5. MALCOMSON, S. M.—List of Ostracoda, in Haddon, &c.: First Report of the Marine Fauna of the South-west of Ireland. *Proc. Roy. Irish Acad.*, ser. 2, vol. iv., 1886, p. 632.



6. BRADY, G. S., and A. M. NORMAN.—Monograph of the Marine and Freshwater Ostracoda of the North Atlantic, and of North-western Europe—Section I. Podocopa. *Trans. Roy. Dubl. Soc.*, ser. 2, vol. iv., 1889, p. 63; and Part 2, Section ii.-iv. Myodocopa, Cladocopa, and Platycopa. *Ibidem*, vol. v., 1896, p. 621.
7. SCHARFF, R. F.—A list of Irish Ostracoda, compiled from Brady and Norman's Monograph. *Irish Naturalist*, 1897, p. 74.
8. BRADY, G. S.—Copepoda and other Crustacea taken in Ireland, and on the N.E. coast of England. *Nat. Hist. Trans., Northumberland, Durham, and Newcastle-upon-Tyne*, vol. xiv., 1902, p. 54.
9. BRADY, G. S.—List of the Ostracoda collected by Mr. George Murray, F.R.S., during the Cruise of the "Oceana" in 1898. *Ann. and Mag. Nat. Hist.*, ser. 7, vol. xii., 1903, p. 337.

I have taken the following excursions in Ireland. (I only mention those, or those parts of excursions, where I collected material for Ostracoda):—

1858. Bantry and Glengariff.
1868. Belfast and Strangford Lough.
1870. Valentia, dredging in company with my friend, Mr. Edward Waller, in Dr. Gwyn Jeffreys' yacht "Osprey." Dr. Jeffreys was unable to be with us.
1874. Westport and Roundstone, in company with my friend, Dr. D. Robertson.
1900. Clifden and Connemara, and subsequently counties Clare and Monaghan, in company with my friend, Mr. W. F. de Vismes Kane.

In 1885, with the very kind help of a gentleman in the neighbourhood, I employed two men for a week to use the townet and dredge in Lough Neagh. My chief object was, if possible to find *Mysis relicta*, which I had sought for in vain in some of the largest lakes of Scotland. Amidst an enormous amount of plankton material was a single specimen which proved the presence of that *Mysis* in Ireland. It has since been taken in the same lough in abundance by Mr. Kane and others, and also in Lough Erne.

The present catalogue gives a larger number of marine Ostracoda than are found on the coasts of either England or Scotland. The deep water off the west of Ireland affords that country great advantages, which must increase more and more as the investigation of its deep-sea fauna is carried on more thoroughly.

The nomenclature employed is that of Professor Brady and my monograph, unless otherwise noted.

OSTRACODA.

Section I.—PODOCOPA.

Fam. I.—CYPRIDÆ.

Genus I.—*Cypria*, Zenker.

- Cypria ophthalmica*** (Jurine).—No doubt common everywhere, as I have found it to be in the counties Antrim, Meath, Monaghan, Fermanagh, Mayo, Galway, and Clare.
- C. exsculpta*** (S. Fischer).—Lough Neagh (A.M.N.), contained in B. and R.'s¹ list of species of Galway and Mayo.

Genus 2.—*Cyclocypris*, Brady and Norman.

- Cyclocypris lævis*** (O. F. Müller).—Lough Neagh (A.M.N.); Lough Erne (Kane!); Grand Canal, Dublin, and counties Galway and Mayo (B. and R.).
- C. serena*** (Koch).—Ballyvaughan, Co. Clare; Braggan, Cornacassa, and Drumreaskie, all near Monaghan (A.M.N.); Loughs of Mayo and Galway (B. and R.).
- C. globosa*** (G. O. Sars).—Ballinahinch and Clifden, Co. Galway; mountain tarn at Braggan, near Monaghan; Cregduff Lough, Roundstone (A.M.N.).

Genus 3.—*Cypris*, O. F. Müller.

- C. virens*** (Jurine).—Belfast (A.M.N.).
- C. incongruens*** (Rambohr).—Belfast (A.M.N.), Isle of Aran (Inishmore), Co. Galway (G.S.B.).
- C. pubera***, O. F. Müller.—Mr. W. F. de V. Kane sent me specimens of this species for examination, which he had taken in Lough Neagh. Dr. G. W. Müller has instituted a new subgenus *Eurycypris* with this species as the type. This cannot stand, for while most of the other species which O. F. Müller included in his genus *Cypris* have been assigned subsequently to other genera, *Cypris pubera* has been left as the type, and with especial propriety, since it was the first species of those ranged under *Cypris* in his *Zool. Dan. Prodromus*.
- C. reticulata***, Zaddach.—Ireland (G.S.B.).
- C. fuscata***, Jurine.—Ireland (G.S.B.) This and the last species are entered in the Irish column, p. 250, of Prof. Brady's and my Monograph; I do not remember on what authority, but conclude that it was that of Prof. Brady.

¹ Here, and throughout, used as the initials of Brady and Robertson.

Cypris blispinosa, Baird.—When Mr. E. Waller and I were together at Valentia in 1870 he brought me some living examples of this splendid species, which he had procured in a small pond, which I think was on an island in the harbour. The types described by Baird were from North Africa, where it has since been again found. Very many years ago the late Dr. Lukis gave me some examples which he had taken in Guernsey. Judging from its known habitats it would seem to be a species which likes a little taste of salt in the water which it inhabits.

Genus 4.—**Cyprinotus**, G. S. Brady.

Cyprinotus prasinus (S. Fischer).—The *Cyprinotus salinus* of Brady is undoubtedly a synonym of Fischer's species. That author found his types at Palermo in Sicily, where I have myself taken the species in the Botanic Gardens. *Cyprinotus prasinus*, *Cypridopsis aculeata*, and *Cytheridea torosa* are three Ostracoda which, although found also quite inland, seem to prefer water not far from the sea which has some slight admixture of salt; and *Cypris incongruens* may perhaps be associated with them. They must not, however, be classed with denizens of such brackish water as is the home of *Hydrobia ventrosa*, *Alderia modesta*, *Palæmonetes varians*, *Neomysis vulgaris*, *Spheroma rugicauda*, *Idotea viridis* Slabber (= *I. salinarum* Dollfus), *Corophium grossipes*, *Lexoconcha viridis*, *Cytherura gibba*, many *Copepoda*, and of *Foraminifera*, *Nonionina depressula*, and *Polystomella striatopunctata*, all of which species are peculiarly typical of brackish water, and are found neither in absolutely salt nor in absolutely fresh water. Ballyvaughan, Co. Clare; Newport, Co. Mayo; and in a locality far inland, a mountain tarn at Braggan, Co. Monaghan (A.M.N.).

Genus 5.—**Herpetocypris**, Brady and Norman.

Herpetocypris reptans (Baird).—Lough Neagh (A.M.N.); Lough Erne and Achill (Kane!); Loughs in Mayo and Galway, and Grand Canal, Dublin (B. and R.).

H. tumefacta (Brady and Robertson).—Cornacassa near Monaghan (A.M.N.).

Genus 6.—**Ilyodromus**, G. O. Sars.

Ilyodromus olivaceus (Brady and Norman).—Mr. de Vismes Kane sent to me for determination specimens taken in Upper Lough Erne.

Genus 7.—**Plonocypris**, Brady and Norman.

Plonocypris vldua (O. F. Müller).—Lough Neagh, Cregduff Lough near Roundstone, and many places near Monaghan (A.M.N.); Loughs in Mayo and Galway, and Grand Canal, Dublin (B. and R.).

P. obesa, Brady and Robertson.—Belfast and Mullingar canals, and Loughs in Mayo and Galway (B. and R.). I believe that this must be united with the last, but Prof. G. O. Sars keeps them distinct.

Genus 8.—**Cypridopsis**, G. S. Brady.

Cypridopsis aculeata (Costa).—I found this in abundance in company with *Cyprinotus prasinus* in slightly brackish water at Ballyvaughan, Co. Clare; also in company with the same species in a mountain tarn at Braggan near Monaghan; and I have also taken it at Newport, Co. Mayo.

C. villosa (Jurine).—This species is included in B. and R.'s list of the species of Mayo and Galway, and Dr. Malcomson found it washed down into the sea at Belfast.

C. Newtoni, Brady and Robertson.—Rossmore, Co. Monaghan (A.M.N.).

C. variegata, Brady and Norman.—In a small pond on the east side of Lough Neagh through which a stream of spring water runs into the lough; also in Lough Neagh canal (A.M.N.).

Genus 9.—**Potamocypris**, G. S. Brady.

Potamocypris fulva, G. S. Brady.—River Liffey at Dublin, and "West of Ireland" (G.S.B.).

Genus 10.—**Aglala**, G. S. Brady.

Aglala complanata, Brady and Robertson.—Low water, Ballyvaughan, Co. Clare, and Birturbuy Bay (A.M.N.); Westport Bay in four fathoms (B. and R.) This species has not yet been found on the coasts of Great Britain.

Genus 11.—**Paracypris**, G. O. Sars.

Paracypris polita, G. O. Sars.—Aran, Dingle Bay, Killary Bay (A.M.N.); tide marks, Island Magee, Co. Antrim (Malcomson).

Genus 12.—**Notodromus**, Lilljeborg.

Notodromus monacha (O. F. Müller).—Newport, Co. Mayo, and in two places near Monaghan (A.M.N.); Coolbarreen Lough, Mayo (B. & R.).

Genus 13.—**Candona**, Baird.

Candona candida (O. F. Müller).—I have seen this common species from the counties Antrim, Monaghan, Clare, and Galway.

Var. **clavæformis**, Brady and Norman.—Lough Neagh, sent to me by Mr. Kane.

C. elongata, Brady and Norman.—The types, and as yet only known examples, were found in a gathering taken from the bottom of Lough Neagh in 1885 (A.M.N.).

C. compressa (Koch).—Brady, in his monograph, writes: "A single valve, belonging apparently to this species, occurred amongst Ostracoda found by Dr. Alcock in shell-sand from Roundstone."

C. fabæformis (S. Fischer).—Coolbarreen Lough, Mayo (B. & R.).

C. lactea, Baird.—Lough Neagh (A.M.N.); Drumreask, near Monaghan (Kane).

Genus 14.—**Candonopsis**, Vavra.

[Vavra, Monographie der Ostracoden Böhmens, 1891, p. 54, and G. W. Müller, Zoologica. Deutschlands Süßwasser Ostracoden, 1900, p. 37.]

Candonopsis Kingsleii (Brady and Robertson).—Ballynahinch, Co. Galway (A.M.N.); Brady also includes it in his list of the species of Mayo and Galway.

Genus 15.—**Ilyocypris**, Brady and Norman.

Ilyocypris Bradii, G. O. Sars.—Ballyvaughan (A.M.N.),

Genus 16.—**Pontocypris**, G. O. Sars.

Pontocypris mytilloides (Norman).—Valentia, Aran, Birturbuy and Westport Bays, Lough Foyle, Strangford Lough (A. M. N.); Clifden Bay (B. & R.); Bantry Bay, and off the Maidens Lighthouse, Co. Antrim (S. M. M.).

P. trigonella, G. O. Sars.—Valentia, Aran, Birturbuy Bay, Westport, Ballyvaughan, Co. Clare (A. M. N.); Clifden and Dublin (B. & R.); Rockport, Co. Down (S. M. M.).

P. hispida, G. O. Sars.—Birturbuy Bay (B. & R.). The only other known habitat in our fauna is Shetland, whence I recorded it in 1868.

P. acupunctata, G. S. Brady.—Valentia (A. M. N.); in shell-sand, Roundstone (Dr. Alcock). This is a very rare species.

Genus 17.—**Anchistrocheles**, Brady and Norman.

Anchistrocheles acerosa (G. S. Brady).—Off the Maidens Lighthouse in 60 fathoms; east of the Gobbins, 60 fathoms; and off Black Head in 75 fathoms, all off the Antrim coast (S. M. M.). This is a very rare species, and where found is, as far as our observations go, numerically very scarce.

Genus 18.—**Argilloëcia**, G. O. Sars.

Argilloëcia cylindrica, G. O. Sars.—Valentia, Aran, Roundstone, Lough Foyle (A. M. N.); Clifden and Birturbuy Bays (B. & R.); Bantry Bay, off the Antrim coast, and in Belfast Lough (S. M. M.).

Fam. II.—**BAIRDIIDÆ**.Genus I.—**Bairdia**, M'Coy.

Bairdia inflata, Norman.—Valentia, Westport, Larne (A. M. N.); Birturbuy Bay, in 10-15 fathoms (G. S. B.); Aran and Galway Bay (Prof. Rowney); Berehaven, 4 fathoms; off Antrim coast in 10-62 fathoms, and in Belfast Lough (S. M. M.).

Bairdia hirsuta, G. S. Brady.

1880. *Bairdia hirsuta*, G. S. Brady, Report "Challenger" Exped. Ostracoda, p. 50 pl. viii., figs. 3 a-d.

Two specimens, which exactly agree with the above description and figures, were taken by the "Porcupine" Expedition of 1869, station 20, lat $55^{\circ} 11' N.$, long. $11^{\circ} 31' W.$, to the west of Donegal, in 1,443 fathoms. The "Challenger" specimens were dredged in the South Atlantic in 1,375 and 1,825 fathoms (A. M. N.).

B. subdeltoides (? Münster), T. R. Jones.

1856. *Bairdia subdeltoides*, T. R. Jones, Mon. Tertiary Entom. *Palæont. Soc.*, p. 52, pl. iv., 2, 2a.

1894. ? *Bairdia decipiens*, G. W. Müller, Fauna und Flora des Golfes von Neapel—Ostracoden, p. 269, pl. xiii., fig. 29; pl. xiv., figs. 10, 21, 22.

A single valve dredged in 1869 by the "Porcupine," station 19, lat. $56^{\circ} 11' N.$, long. $10^{\circ} 56' W.$, in 1,366 fathoms, exactly agrees with the figure of Prof. T. Rupert Jones, to which I have above referred. Of the various species described by Brady and by Müller, it seems to come nearest to *B. decipiens*, Müller. The *Bairdia* are a very difficult group. The sexual differences would seem to be considerable, and the difficulty is increased by the difference in form of the two valves, and of the variation of outline at different periods of development.

Genus 2.—**Macrocypris**, G. O. Sars.

Macrocypris minna (Baird).—Dredged by the "Porcupine," 1869, station 3, in the ocean west of Bantry, lat. $51^{\circ} 38' N.$, long. $12^{\circ} 50' W.$, in 722 fathoms. The only other British locality is off Shetland, where it was dredged first by Mr. M'Andrew, and subsequently in two different years by myself (A. M. N.).

M. sillquosa, G. S. Brady.—"Porcupine," 1869, station 19, a broken but unmistakable part of a valve, lat. $56^{\circ} 11' N.$, long. $10^{\circ} 56' W.$, that is, to the west of Donegal, in 1,366 fathoms (A. M. N.).

Genus 3.—**Bythocypris**, G. S. Brady.

B. obtusata, G. O. Sars.—Off the Antrim coast, in 60 fathoms (S. M. M.).

Fam. III.—**DARWINULIDÆ.**Genus 1.—**Darwinula**, Brady and Robertson.

Darwinula Stevensoni, Brady and Robertson.—Cregduff Lough, Roundstone (A. M. N.); Loughs Inagh, Corrib, Agraftard, Arddery, and Mesarahoge, in Connemara (B. & R.).

Fam. IV.—CYTHERIDÆ.

Genus I.—**Metacypriis**, Brady and Robertson.

Metacypriis cordata, Brady and Robertson.—This interesting freshwater species has been taken by B. and R. in Coolbareen Lough, Co. Mayo, and Lough Aubwee, Galway.

Genus 2.—**Cythere**, O. F. Müller.

Cythere lutea, O. F. Müller.—Bantry, Valentia, Ballyvaughan, in Co. Clare, Aran, Clew Bay (A. M. N.); Birturbuy and Dublin Bays (B. & R.); Antrim coast and Belfast Lough (S. M. M.)

C. cyamos, Norman.

1865. *Cythere viridis*, G. O. Sars—Oversigt af Norges Marine Ostracoden. Vid. Selsk. Forhandl., p. 30.

1868. *Cythere viridis*, G. S. Brady—Mon. rec. Brit. Ostrac., *Trans. Linn. Soc.*, vol. xxvi., p. 397, pl. xxviii., figs. 40-41, and 57-59, pl. xxxviii., fig. 8.

I had for some time thought that this was the young of *C. lutea*, and it is true that the young of the latter species is very like *C. cyamos*, yet it has not quite the same form. Sars referred this species to the *Cythere viridis* of Müller, but I regard Müller's species as that which Prof. Brady used to name *Loxoconcha elliptica*.

Newcastle, Co. Down (Brady); Berehaven, 4 fathoms (S. M. M.).

C. confusa, Brady & Norman.—Bantry, Valentia Harbour, Dingle Bay, Aran, Clew Bay, Lough Foyle, Strangford Lough (A. M. N.); Dublin, Clifden, and Birturbuy Bays (B. & R.); Berehaven and Belfast Lough (S. M. M.). This is *C. pellucida* of Brady's monograph. I do not quote localities given in that work, as at the time when it was published several species were confused with this.

C. pellucida, Baird.—Valentia, Westport, Lough Foyle (A. M. N.); Clifden Bay (B. & R.); Dublin Bay and Belfast canal (G. S. B.); Belfast Lough and off Black Head, Co. Antrim, 15-18 fathoms (S. M. M.).

C. porcellanea, G. S. Brady.—Valentia, Aran, Westport (A. M. N.); Belfast Lough (S. M. M.).

C. macallana, Brady and Robertson.—Ballyvaughan, Co. Clare, tide marks at Aran, Westport (A. M. N.); Dublin Bay, Clifden Bay, 3-5 fathoms, and Birturbuy Bay (B. & R.); Belfast Lough, tide marks (S. M. M.).

C. tenera, G. S. Brady.—Valentia, Dingle Bay, Aran, Lough Foyle (A. M. N.); Dublin and Birturbuy Bay (B. & A.); coast of Kerry and Belfast Lough, tide marks to 60 fathoms (S. M. M.).

C. sempunctata, G. S. Brady.—Aran, Birturbuy Bay, Westport (A. M. N.); Mulroy Bay (B. & R.); Antrim coast and Belfast Lough (S. M. M.).

C. badia, Norman.—Bantry, Aran, Roundstone Bay (A. M. N.); Westport (B. & R.); Antrim coast and Belfast Lough (S. M. M.).

- Cythere crispata**, G. S. Brady.—Valentia, Aran, Roundstone, Westport (A. M. N.); Dublin, Clifden, and Birturbuy Bays (B. & R.); Berehaven, Antrim coast, and Belfast Lough, tide marks to 60 fathoms (S. M. M.).
- C. cribrosa**, Brady, Crosskey, and Robertson.—Dr. Malcomson records a single specimen of this species as having been found by him at Rockport, Co. Down. This is the only instance of *C. cribrosa*, which was described as a fossil of the post-tertiary beds, being found recent. When we remember that off Belfast the dredge brings up arctic post-tertiary Mollusca which no longer live in our seas, but which have a remarkably recent appearance, it is possible that the specimen found by Dr. Malcomson may have been washed out of the same sub-marine strata.
- C. sulcifera**, Brady and Norman.—“Porcupine,” 1869, station 19, east of Donegal, in 1,360 fathoms. The type and only known specimen.
- C. gibbosa**, Brady & Robertson.—A brackish water species. Newport and Westport, Co. Mayo (A. M. N.); Roundstone, Mulroy Bay, canal at Belfast (B. & R.); Dundrum (G. S. B.); Rockport, Co. Down, and off the Maidens Lighthouse in 60 fathoms (S. M. M.). The specimen in this last locality must have been washed out to sea.
- C. rubida**, G. S. Brady.—I found this species in 1902, living at low water, at Ballyvaughan, Co. Clare. This widely extends our knowledge of its distribution in our seas. All previous examples had occurred in the Clyde district, the second Irish locality being between tide marks, Rockport, Co. Down (S. M. M.); and the remaining two habitats are both in the Firth of Clyde itself—namely, Lamlash Bay, where I took the type specimens in 1854, and the Isle of Cumbrae, where it was found by the late Dr. D. Robertson. It occurs in Norway, and was described by Professor G. O. Sars under the name *Cythere drammensis*.
- C. albomaculata**, Baird.—Youghal, Valentia, Dingle Bay, Bantry, Ballyvaughan, Aran, Roundstone, Lough Foyle, Strangford Lough (A. M. N.); Dublin, Clifden, and Birturbuy Bays (B. & R.); Newcastle, Co. Down (G. S. B.); Antrim coast and Belfast Lough (S. M. M.).
- This species is abundant in rock-pools all round our coast. Northwards, in Norway, it would seem to be very scarce, as Professor Sars had not met with it; but I took a few specimens at Lervig, in the Hardanger Fiord. To the south it is not recorded in Dr. G. W. Müller's fine work on the Mediterranean Ostracoda. Nevertheless it would seem to be a southern form, since I found it to be common in rock-pools at Madeira in 1897.
- C. Robertsoni**, G. S. Brady.—Bantry, Aran, Westport (A. M. N.); Roundstone (Robertson in Mus. Nor.); Dublin (B. & R.); Berehaven, entrance Bantry Bay; 40 fathoms off Antrim coast, and in Belfast Lough (S. M. M.).

- Cythere convexa**, Baird.—Youghal, Valentia, Dingle Bay, Ballyvaughan, Aran, Clew Bay, Strangford Lough (A. M. N.); Cork (C. E. Davison); Dublin, Roundstone, and Birturbuy Bays (B. & R.); Berehaven, Antrim coast, and Belfast Lough (S. M. M.). A species of wide range from tide marks to a considerable depth.
- C. marginata**, Norman.—Birturbuy Bay (B. and R.); four miles E. of the Gobbins, Antrim, in 60 fathoms (S. M. M.).
- C. Jeffreysii**, G. S. Brady.—Roundstone in shell-sand (Dr. Alcock); Birturbuy Bay in 10-15 fathoms (B. & R.).
- C. limicola**, Norman.—Off S.W. Ireland, in 110 fathoms; one mile off the Gobbins, Antrim, in 15-18 fathoms, and Belfast Lough, 6-10 fathoms (S. M. M.). This I have myself only met with in deep water.
- C. cuneliformis**, G. S. Brady.—Aran (A. M. N.); shell-sand from Galway (Prof. Rowney); Roundstone Bay, 2-3 fathoms (G. S. B.); Dublin and Westport Bays (B. & R.); off Antrim coast and in Belfast Lough, down to 60 fathoms (S. M. M.).
- C. navicula**, Norman.—Roundstone and Birturbuy Bays, Larne (A. M. N.); Berehaven, Antrim coast, and Belfast Lough, tide marks to 60 fathoms (S. M. M.).
- C. globulifera**, G. S. Brady.—Off Valentia, 112 fathoms (A. M. N.); Roundstone, in shell-sand (G. S. B.); S.S.E. of Maidens Lighthouse on Antrim coast, 72 fathoms, and off the Great Skellig, Co. Kerry (S. M. M.).
- C. cluthæ**, Brady, Crosskey, and Robertson.—Dr. Malcomson wrote of this very rare species—"Although rare, this species appears to be generally distributed in the deeper water." The localities in which he found it were off the Antrim coast, in 60-72 fathoms, 2-5 miles S.E. of the Maidens Lighthouse, and half a mile off Coalpit Bay, in 13 fathoms; also off White Head in Belfast Lough, in 10-18 fathoms. The only other known locality in our seas is Loch Fyne, where it was taken by Dr. Scott, in about 20 fathoms. It is an Arctic form. In Nares' Arctic Expedition it was dredged in 80 fathoms off Cape Frazier; and in 1890 I dredged it living in two localities in East Finmark, viz., in the Varanger Fiord, in 125-150 fathoms, and in Bög Fiord, in 20-30 fathoms.
- C. pulchella**, G. S. Brady.—"A great many somewhat dwarfed specimens, apparently belonging to this species, were found at Berehaven in 4 fathoms" (S. M. M.).
- C. villosa**, G. O. Sars.—Bantry, Valentia Harbour, Ballyvaughan, Aran, Westport, Lough Foyle, Strangford Lough, Youghal (A. M. N.); Donegal Bay (E. C. Davison); Newcastle and Birturbuy Bay (G. S. B.); Dublin and Clifden Bay (B. & R.); Berehaven, Antrim coast and Belfast Lough (S. M. M.).
- C. acanthoderma**, G. S. Brady.—"Porcupine," 1869, station 19, lat. 54° 53' N., long. 10° 56' W., to the west of Donegal, in 1,360 fathoms, and also at station 20, lat. 55° 11' N., long. 11° 31' W., in 1,443 fathoms (A. M. N.).

- Cythere echinata**, G. O. Sars.—“Porcupine,” 1869, with the last at station 19; also a few specimens and a single valve, station 34, lat. $49^{\circ} 51' N.$, long. $10^{\circ} 12'$, that is, due south of Bantry, in 75 fathoms (A. M. N.)
- C. dasyderma**, G. S. Brady.—“Porcupine,” stations 19 and 20, as above (A. M. N.)
- C. scabrocuneata**, G. S. Brady.—Dredged with the three preceding abyssal species at station 19, in 1,360 fathoms. All these species have a wide geographical range in very deep water in the Atlantic.
- C. quadridentata**, Baird.—Valentia, in 80 fathoms; Aran, Birturbuy, and Killary Bays (A. M. N.); Clifden Bay and Mulroy Bay (B. & R.); off Kerry coast; off Black Head, Antrim, in 15-18 fathoms, and in Belfast Lough, tidemarks to 10 fathoms (S. M. M.)
- C. emaciata**, G. S. Brady.—Bantry, Valentia, Dingle Bay, Aran, Birturbuy Bay, Clew Bay (A. M. N.); Baltimore (C. E. Davison); Clifden Bay and Mulroy Bay (G. S. B.); Galway Bay (Prof. Rowney); Berehaven, Antrim coast and Belfast Lough (S. M. M.)
- C. tuberculata** (G. O. Sars).—Bantry, Valentia, Westport (A. M. N.); Roundstone (Dr. Alcock); Baltimore (Prof. Rowney); off Great Skellig, Antrim coast, and Belfast Lough, tidemarks to 60 fathoms (S. M. M.)
- C. concinna** (T. R. Jones).—Off Valentia, Lough Foyle (A. M. N.); Roundstone (Dr. Alcock); Antrim coast, tidemarks to 18 fathoms, Rockport, Co. Down, and off Kerry coast (S. M. M.)
- C. finmarchica** (G. O. Sars).—Roundstone, in shell-sand (Dr. Alcock); Galway Bay, in shell-sand (Prof. Rowney), off Great Skellig, Co. Kerry, Brown's Bay, Co. Antrim, tidemarks to 72 fathoms; Belfast Lough, 10 fathoms (S. M. M.)
- C. angulata** (G. O. Sars).—Dublin, Birturbuy, Clifden, and Westport Bays (B. & R.); off the Maidens Lighthouse, Antrim, in 60 fathoms; Belfast Lough, 6-8 fathoms; between tidemarks at Rockport, Donaghadee, and other places N.E. of Ireland (S. M. M.)
- C. Whitei** (Baird).—Dublin Bay (B. & S.); Island Magee, Co. Antrim, tidemarks, and off the coast of Kerry (S. M. M.)
- C. antiquata** (Baird).—Bantry, Valentia, and Aran (A. M. N.); Birturbuy and Westport Bays (B. & R.); Kerry coast; Antrim coast, 15-60 fathoms; Belfast Lough (S. M. M.)
- C. dunelmensis** (Norman).—Off Valentia (A. M. N.); off Great Skellig, Co. Kerry; Rockport, Co. Down (S. M. M.)
- C. Jonesii** (Baird).—Off Valentia, to 112 fathoms; Bantry, Killary Bay, Aran (A. M. N.); Roundstone, in shell-sand (Dr. Alcock); Birturbuy Bay and Mulroy Bay (B. & R.); off Kerry coast, Antrim coast, 15-60 fathoms, Belfast Lough (S. M. M.)

Genus 3.—**Limnocythere**, G. S. Brady.

- Limnocythere inopinata** (Baird).—Lough Neagh (A. M. N.); Mullingar, canal at Dublin (B. & R.)
- L. Sancti-Patricii**, Brady and Robertson.—Lough Neagh and Rossmore, Co. Monaghan (A. M. N.); Lough Moher, which is about five miles south of Westport, Co. Mayo (B. & R.)

Genus 4.—**Cytheridea**, Bosquet.

- C. elongata**, G. S. Brady.—Bantry, Valentia, Dingle Bay, Aran, Clew Bay, Lough Foyle, Strangford Lough, Youghal (A. M. N.); Roundstone (G. S. B.); Dublin and Clifden Bay (B. & R.); Berehaven, Antrim coast, tide marks to 60 fathoms; Belfast Lough (S. M. M.).
- C. papillosa**, Bosquet.—Off Valentia in deep water, Westport (A. M. N.); Antrim coast, 15-60 fathoms; Belfast Lough, tide marks to 10 fathoms; off Great Skellig, Co. Kerry (S. M. M.).
- C. punctillata**, G. S. Brady.—Off Valentia (A. M. N.); Dublin Bay, 3-4 fathoms (B. & R.); off Great Skellig (S. M. M.).
- C. stigmosa**, Brady & Norman.—The types were dredged in deep water off Valentia in 1870 (A. M. N.). It has not as yet been found elsewhere.
- C. torosa** (T. R. Jones).—In brackish waters, Newport and Westport Bays, Co. Mayo (A. M. N.).
- C. lacustris** (G. O. Sars).—Lough Neagh (A. M. N.).
- C. subflavescens**, G. S. Brady.—Off the coast of Antrim, 15-72 fathoms; Belfast Lough, 10 fathoms; Donaghadee, tide marks (S. M. M.).
- C. sorbyana**, T. R. Jones.—In 112 fathoms, 30 miles off Valentia, in 1870 (A. M. N.); off the Great Skellig (S. M. M.).

Genus 5.—**Eucythere**, G. S. Brady.

- Eucythere declivis** (Norman).—Bantry, Valentia, Dingle Bay, Aran, Lough Foyle, Strangford Lough (A. M. N.); Galway and Roundstone (G. S. B.); Donegal Bay (E. C. Davison); Kerry coast, Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).
- Var. **argus**, G. O. Sars.—In shell-sand, Galway Bay (Prof. Rowney) Dublin and Westport Bays (B. & R.).
- E. anglica**, G. S. Brady.—Westport, Co. Mayo (A. M. N.); Clifden Bay to 6 fathoms (B. & S.). This is the same form which was subsequently called by Brady and Robertson var. *prava*; they apparently having forgotten that the former had already described it under the name *E. anglica* in an appendix to his monograph (p. 475). I am disposed to regard it as a good species.

Genus 6.—**Krithe**, Brady, Crosskey, & Robertson.

- Krithe bartonensis** (T. R. Jones).—Off Valentia, Youghal (A. M. N.); Donegal (E. C. Davison); Aran, Roundstone, and Birturbuy Bays (G. S. B.); off the Great Skellig (S. M. M.).
- K. producta**, G. S. Brady.—“Porcupine,” 1869, station 19, lat. 54° 53' N., long. 10° 56' W., to the west of Donegal, in 1,350 fathoms; station 20, lat. 55° 11' N., long. 11° 31' W., in 1,443 fathoms, and station 34, south of Berehaven, lat. 49° 51' N., long. 10° 12' W., in 75 fathoms. In this last locality only a single valve was found. It is a species of very wide distribution in very great depths in the ocean.

Krithe glacialis, Brady, Crosskey, and Robertson.—“One or two specimens of this species have been found in 110 fathoms off the Great Skellig. It does not appear to have been previously recorded in a recent state” (S. M. M.). Was *Krithe producta*, which is extremely variable, mistaken for it?

Genus 7.—**Loxoconcha**, G. O. Sars.

Loxoconcha impressa (Baird).—Apparently found all round the coast between tide marks—Bantry, Valentia, Dingle Bay, Aran; Ballyvaughan, Co. Clare; Westport, Lough Foyle, Strangford Lough, Youghal (A. M. N.); Galway, Birturbuy, and Roundstone Bays (G. S. B.); Dublin and Clifden Bay (B. & S.); Berehaven, Antrim coast, Belfast, and Donaghadee (S. M. M.); Newcastle (G. S. B.)

L. viridis (O. F. Müller).—This is not the *Cythere viridis* of Sars and of Brady, but the *Loxoconcha elliptica* of the latter author. It is a brackish water form. Westport and Newport (A. M. N.); Dundrum (G. S. B.).

L. guttata (Norman).—Bantry, Valentia, Dingle Bay, Aran, Killary Bay, Roundstone (A. M. N.); Dublin, Clifden, and Westport Bays, Lough Swilly and Mulroy Bay (B. & R.); Kerry coast, Antrim coast, and Belfast Lough (S. M. M.).

L. tamarindus (T. R. Jones).—Bantry, Valentia, Dingle Bay, Aran, Lough Foyle, Strangford Lough (A. M. N.); Galway and Roundstone (G. S. B.); Kerry coast, Dublin, Clifden, and Westport Bays (B. & R.); Antrim coast, Belfast Lough, and Donaghadee (S. M. N.). The Ostracod which Dr. Malcomson recorded under the name *Loxoconcha cuneiformis* was the male of this species.

L. multifora, Norman—Valentia, Dingle Bay, Aran, Roundstone (A. M. N.); Clifden and Westport Bays (B. & R.); off Great Skellig, Antrim coast, and Belfast Lough (S. M. M.).

L. pusilla, Brady & Robertson.—Westport, Co. Mayo (A. M. N.); two miles N.E. of Muck Island, Co. Antrim, in 50 fathoms; and several places between tide marks in Belfast Lough and at Donaghadee (S. M. M.). Not as yet known outside the British Isles.

L. fragilis, G. O. Sars—In 112 fathoms west of Valentia in 1870 (A. M. N.); off Great Skellig (S. M. M.).

Genus 8.—**Xestoleberis**, G. O. Sars.

Xestoleberis aurantia (Baird).—Tide marks Aran, Roundstone Renvyle, Co. Galway, Westport, Strangford Lough (A. M. N.); Berehaven, Dublin, and Clifden Bays and Lough Swilly (B. & R.); Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).

X. depressa, G. O. Sars.—Bantry, Valentia, Aran, Westport, Lough Foyle (A. M. N.); Birturbuy and Clifden Bays (B. & R.); Kerry coast, Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).

X. labiata, Brady and Robertson.—Abundant among weeds at low water, Ballyvaughan, Co. Clare (A. M. N.).

Genus 9.—**Cytherura**, G. O. Sars.

- Cytherura gibba** (O. F. Müller).—Westport (A. M. N.); canal at Belfast (B. & R.). Dr. Malcomson states that it was taken four miles off the Gobbins, on the Antrim coast, in 60 fathoms. How did this brackish-water species get there? Dundrum (G. S. B.).
- C. cornuta**, G. S. Brady.—Bantry, Valentia, Ballyvaughan, Aran, Westport (A. M. N.); Dublin, Clifden, and Roundstone Bays (B. & R.); Berehaven, Antrim coast, and Belfast Lough (S. M. M.).
- C. sella**, G. O. Sars.—Valentia, Ballyvaughan, Aran, Westport, Lough Foyle (A. M. N.); Birturbuy and Clifden Bays, and Dublin (B. & R.); Berehaven, Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).
- C. acuticostata**, G. O. Sars.—Bantry, Aran, Westport (A. M. N.) Birturbuy and Clifden Bays (B. & R.); Kerry coast, Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).
- C. striata**, G. O. Sars.—Bantry, Valentia, Dingle Bay, Aran, Birturbuy, Westport, Lough Foyle (A. M. N.); Dublin and Clifden Bays (B. & R.); Kerry coast, Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).
- C. angulata**, G. S. Brady.—Bantry, Aran; "Porcupine," 1869, stat. 6, west of Shannon, in 90 fathoms (A. M. N.); Antrim coast and Belfast Lough (S. M. M.); Birturbuy Bay (B. & R.).
- C. producta**, G. S. Brady.—Bantry, Aran, Valentia, Lough Foyle, Westport, Strangford Lough (A. M. N.); Roundstone and Mulroy Bay (B. & S.); Kerry coast, Antrim coast, and Belfast Lough (S. M. M.).
- C. undata**, G. O. Sars.—Aran, Westport; "Porcupine," 1869, in 90 fathoms west of the Shannon (A. M. N.); Dublin, Clifden, and Birturbuy Bays (B. & R.); entrance to Bantry Bay, Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).
- C. nigrescens** (Baird).—Everywhere between tide marks; also in the Laminarian zone and moderately deep water.
- C. simplex**, Brady and Norman.—Roundstone (A. M. N.); Birturbuy Bay (B. & R.); Belfast Lough (Malcomson, *vide* G. S. B.). I presume that it is this species which Dr. Malcomson himself thence recorded as *Cytherura propinqua*, and under that same name he records a species as being common at Berehaven.
- C. concentrica**, Brady, Crosskey, and Robertson.—Two specimens off Great Skellig, Co. Kerry (S. M. M.).
- C. similis**, G. O. Sars.—Dublin Bay, 3-4 fathoms (B. & R.); Berehaven, and Newcastle, Co. Down (G. S. B.).
- C. fulva**, Brady and Robertson.—Valentia, Westport (A. M. N.); Clifden Bay (G. S. B.); Berehaven, very common; Antrim coast and Belfast Lough (S. M. M.).
- C. clathrata**, G. O. Sars.—Antrim coast and Belfast Lough (S. M. M.). This is an arctic form which has been found as far north as Franz Josef Land.

Cytherura cellulosa (Norman).—Bantry, Valentia, Dingle Bay, Aran, Roundstone (A. M. N.); Dublin and Clifden Bays (B. & R.); Donegal and Newcastle (G. S. B.); Antrim coast and Belfast Lough (S. M. M.).

Genus 10.—**Cytheropteron**, G. O. Sars.

Cytheropteron latissimum (Norman).—Bantry, Valentia, Dingle Bay, Lough Foyle, Strangford Lough (A. M. N.); Antrim coast and Belfast Lough (S. M. M.).

C. nodosum, G. S. Brady.—In shell-sand from Roundstone (Dr. Alcock, *vide* Brady); Clifden Bay (B. and R.); Antrim coast, Belfast Lough, Kerry coast (S. M. M.).

C. punctatum, G. S. Brady.—Bantry, Valentia, Roundstone (A. M. N.); Clifden and Westport Bays (B. & R.); Antrim coast and Belfast Lough (S. M. M.).

C. crassiplnnatum, Brady and Norman.—The types, and as yet only known specimens, were dredged by me in 1870, in 112 fathoms, off Valentia.

C. alatum, G. O. Sars.—Off Valentia in 80–112 fathoms (A. M. N.); off the Great Skellig, Co. Kerry, in 70–110 fathoms (S. M. M.).

C. læve, Brady & Norman.—A single valve dredged by the "Porcupine," 1869, in 1,366 fathoms, at station 19, lat. $56^{\circ} 11' N.$, long. $10^{\circ} 56' W.$, in the ocean west of Donegal Bay. Only two other valves are known. These were procured in the same expedition of the "Porcupine," station 41, lat. $49^{\circ} 4' N.$, long. $12^{\circ} 22' W.$, in 584 fathoms; this station was S.S.W. of the S.W. of Ireland, but outside the British area.

C. angulatum, Brady and Robertson.—Off Valentia, Roundstone (A. M. N.); off the Antrim coast in 60 fathoms (S. M. M.).

C. inflatum, Brady, Crosskey, and Robertson.—"Porcupine," 1869, station 19, lat. $54^{\circ} 33' N.$, long. $10^{\circ} 56' W.$, in the sea to the west of Donegal in 1,366 fathoms (A. M. N.).

C. montrosiense, Brady, Crosskey, and Robertson.—Roundstone Bay (B. & R.); rare off the Great Skellig (S. M. M.).

C. depressum, Brady and Norman.—Valentia, Aran, Roundstone, Westport, Lough Foyle (A. M. N.); Clifden and Galway Bays and Lough Swilly (B. & S.); Berehaven very common, Belfast Lough, and Donaghadee (S. M. M.).

Genus 11.—**Bythocythere**, G. O. Sars.

Bythocythere constricta, G. O. Sars.—Bantry, Valentia, down to 112 fathoms, Dingle Bay (A. M. N.); Dublin and Mulroy Bays and Lough Swilly (B. & S.); Antrim coast and Belfast Lough (S. M. M.).

B. turgida G. O. Sars.—Off Valentia (A. M. N.); Roundstone (B. & R.); Antrim coast and Belfast Lough (S. M. M.).

B. recta, G. S. Brady.—Roundstone (A. M. N.); Westport (B. & S.); Antrim coast and Belfast Lough (S. M. M.).

B. simplex (Norman).—Twenty-five miles off Valentia in 80 fathoms (A. M. N.); rare off Antrim coast and in Belfast Bay (S. M. M.).

Genus 12.—**Pseudocythere**, G. O. Sars.

Pseudocythere caudata, G. O. Sars.—Bantry, Valentia, Ballyvaughan, Aran, Strangford Lough (A. M. N.); Dublin and Birturbuy Bays (B. & R.); Berehaven, Antrim coast, Belfast Lough, and Donaghadee (S. M. M.).

Genus 13.—**Sclerochilus**, G. O. Sars.

S. contortus (Norman).—Valentia, Aran, Westport, Lough Foyle, Strangford Lough (A. M. N.); Dublin and Birturbuy Bays (B. & R.); off Great Skellig, Antrim coast, Donaghadee, and Belfast Lough (S. M. M.).

S. lævis, G. W. Müller.—

1869, *Sclerochilus contortus* var. *abbreviatus*, Brady and Robertson, *Ann. & Mag. Nat. Hist.*, Ser. 4, vol. iii., p. 20 (separate copy), Pl. xx., figs. 15-16.

1894, *Sclerochilus lævis*, G. W. Müller, *Fauna und Flora des Golfes von Neapel. Die Ostracoden*, p. 283, Pl. xvi., figs. 3, 8, 20, 23, 28.

The *Sclerochilus* described by Müller under the above names is clearly the same as that which Brady and Robertson regarded as a variety of *S. contortus*. I adopt Müller's views here, but am not confident that the species is a good one. I found it myself at Naples, and at Madeira, where it prevails rather than *S. contortus*.

Clifden Bay (B. & R.).

Genus 14.—**Cytherideis**, T. R. Jones.

Cytherideis subulata, G. S. Brady.—Valentia, Aran, Lough Foyle, Strangford Lough (A. M. N.); Dublin, Birturbuy, and Westport Bays (B. & R.); Antrim coast, Belfast Lough, Donaghadee (S. M. M.).

Genus 15.—**Cytherois**, G. W. Müller.

C. Fischeri (G. O. Sars).—Valentia, Aran, Ballyvaughan, Westport, Lough Foyle (A. M. N.); Dublin and Clifden Bays (B. & R.); Antrim coast and Belfast Lough (S. M. M.).

Fam V.—**PARADOXOSTOMATIDÆ**.Genus I.—**Paradoxostoma**, S. Fischer.

Paradoxostoma variabile (Baird).—Bantry, Valentia, Aran, Ballyvaughan, Roundstone, Westport, Strangford Lough (A. M. N.); Dublin and Clifden Bays (B. & R.); Newcastle, Co. Down, and Dundrum (G. S. B.); Antrim coast and Belfast Lough (S. M. M.).

P. ensiforme, G. S. Brady.—Bantry, Valentia, Dingle Bay, Aran, Lough Foyle, Strangford Lough (A. M. N.); Donegal Bay (E. C. Davison); Dublin and Birturbuy Bays (B. & R.); Berehaven, Antrim coast, and Belfast Lough (S. M. M.).

- Paradoxostoma abbreviatum**, G. O. Sars.—Valentia Harbour, Dingle Bay, Aran, Roundstone, Lough Foyle (A. M. N.); Dublin Bay (B. & R.); Berehaven, Antrim coast, and Belfast Lough (S. M. M.).
- P. obliquum**, G. O. Sars.—Valentia Harbour, Aran, Westport, Lough Foyle (A. M. N.); Clifden Bay, Mulroy Bay, Lough Swilly (B. & R.); Berehaven, coast of Antrim, Belfast Lough (S. M. M.).
- P. Normanii**, G. S. Brady.—Aran, Westport, Lough Foyle, Strangford Lough (A. M. N.); Roundstone Bay and Lough Swilly (B. & R.); Antrim coast and Belfast Lough (S. M. M.).
- P. pulchellum**, G. O. Sars.—Valentia, Aran, Ballyvaughan, Roundstone (A. M. N.); Mulroy Bay (B. & R.); Belfast Lough and Rockport, Co. Down (S. M. M.).
- P. hibernicum**, G. S. Brady.—Valentia, Aran, Ballyvaughan, Roundstone, Westport, Strangford Lough (A. M. N.); Clifden Bay and Lough Swilly (B. & R.); Berehaven, Rockport, Co. Down (S. M. M.).
- P. fasciatum**, Brady and Norman.—Clew Bay, 2-4 fathoms (A. M. N.).
- P. arcuatum**, G. S. Brady.—Roundstone (A. M. N.); Birturbuy Bay (G. S. B.); Clifden Bay (B. & R.).
- P. orchadense**, Brady and Robertson.—Berehaven, common (S. M. M.).
- P. flexuosum**, G. S. Brady.—Valentia, Aran, Roundstone, Westport (A. M. N.); Clifden Bay, Mulroy Bay, Lough Swilly (B. & R.); Berehaven, Antrim coast and Belfast Lough (S. M. M.).

Genus 2.—**Machærlina**, Brady and Norman.

- Machærlina tenuissima** (Norman).—Off Valentia; Roundstone and Killary Bays (A. M. N.); Belfast Lough (S. M. M.).

Section II.—MYODOCOPA.

Fam. I.—**ASTEROPIDÆ.**

Genus 1.—**Asterope**, Philippi.

- Asterope Marlæ** (Baird).—Valentia and Birturbuy Bay (A. M. N.); Mulroy Lough (B. & R.).
- A. elliptica**, Philippi.—Off Valentia, 1870 (A. M. N.).
- A. teres** (Norman).—Off Valentia, 1870, and Birturbuy Bay (A. M. N.); Mulroy Bay and Lough Swilly (B. & R.).

Fam. II.—**CYPRIDINIDÆ.**

Genus 1.—**Crossophorus**, G. S. Brady.

- Crossophorus Imperator**, G. S. Brady.—I quote the following note regarding this magnificent Ostracod from Professor Brady's and my monograph:—"The type specimen, a male, was dredged by the 'Challenger' Expedition, Stat. 168, which is a little to the east of New Zealand, lat. 40° 28' S., long. 177° 43' E., in 1,100 fathoms, bottom temperature 2° C. on grey ooze. The second specimen,

from which the animal is here described, and the drawings made, is a female, which apparently differs in no respect from the male except in sex, was procured by the 'Porcupine' Expedition in 1869 in the Atlantic, west of Donegal Bay, Ireland, Stat. 20, lat. $55^{\circ} 11' N.$, long. $11^{\circ} 31' W.$, in 1,443 fathoms, bottom temperature 37° Fahr. It is interesting to observe that though the specimens were found so very far apart the temperature of the water only differed by $1\frac{1}{2}$ degrees, since $2^{\circ} C.$ equals $35^{\circ} 6' Fahr.$ " Owing to the great uniformity of temperature in the great depths of the oceans, I believe that it will be found generally, as experience is gained, that the deep water species have a much wider distribution than those which inhabit depths subject to alteration of temperature dependent upon atmospheric conditions.

Genus 2.—**Phyllomedes**, Lilljeborg.

Phyllomedes interpuncta (Baird).—Valentia, 1870, and Birturbuy Bay (A.M.N.); off White Head, Belfast Lough, 19 fathoms (S.M.M.).

P. MacAndrei (Baird).—Taken by the "Porcupine," 1869, at two stations off the south-west of Ireland, viz., Stations 3 and 7, in depths of 722 and 159 fathoms; and also at Station 18, off Mayo, in 183 fathoms.

Fam. 3.—**SARSIELLIDÆ**.

Genus.—**Sarsilella**, Norman.

Sarsilella capsula, Norman.—The form we described in our monograph as *Nematohamma obliqua* is, according to the observations of Herr G. W. Müller, who has found the genus *Sarsilella* to be not uncommon at Naples, the male of *Sarsilella capsula*. Both sexes were dredged by me in 1870, in 112 fathoms, off Valentia, and the male also off Birturbuy Bay.

Fam. 4.—**HALOCYPRIDÆ**.

Genus 1.—**Conchoëcia**, Dana.

Conchoëcia Haddonii, Brady and Norman.—Captured by Professor Haddon in a tow-net sunk to 200 fathoms, 40 miles off Achill Head. These are the types.

C. magna, Claus.—"Oceana," Station 1,¹ 270 fathoms; Station 4, 150 fathoms.

¹ The "Oceana" had four days tow-netting in very deep water; the first and fourth of these were within the British area, and I shall term them Stations 1 and 4. See Brady, *Ann. & Mag. Nat. Hist.* (7) vol. iii., 1903, p. 337.

Station I Lat. $52^{\circ} 45' N.$, long. $12^{\circ} 27' W.$, in 270 to 650 fathoms.

Station IV. Lat. $52^{\circ} 20' N.$, long. $15^{\circ} 7' 9' W.$, 150-560 fathoms. The remaining days were spent working over depths beyond 1,500 fathoms.

- ? **Conchœcla maxima**, Brady and Norman.—“Oceana,” Station 1, 374 fathoms; but marked with a query.
- C. imbricata**, G. S. Brady.—“Oceana,” Station 1, 620 fathoms; Station 4, 510 and 560 fathoms.
- C. hyalophyllum**, Claus.—“Oceana,” Station 1, 620 fathoms; Station 4, 510 and 560 fathoms.
- C. spinirostris**, Claus.—“Oceana,” Station 4, 150 fathoms.

Genus 2.—**Paraconchœcla**, Claus.

- Paraconchœcia oblonga**, Claus.—“Oceana,” Station 1, in 464, 620, and 650 fathoms.
- P. spinifera**, Claus.—“Oceana,” Station 1, in 270 fathoms; and Station 4, 150 fathoms.

Genus 3.—**Microconchœcia**, Claus.

- ? **Microconchœcia Clausii**, G. O. Sars.—“Oceana,” Station 1, 270 fathoms, recorded with a query.

Genus 4.—**Conchœcilla**, Claus.

- Conchœcilla lacerta**, Brady and Norman.—“Oceana,” Station 4, 510 and 560 fathoms.
- C. daphnoides**, Claus.—A single specimen, taken by Professor Haddon in the same gathering as *Conchœcia Haddoni*.

Section III.—CLADOCOPA.

Fam. I.—**POLYCOPIDÆ.**

Genus 1.—**Polycope**, G. O. Sars.

- Polycope orbicularis**, G. O. Sars.—Off Valentia, Dingle Bay, Birtur-buy Bay, Clew Bay (A.M.N.); Roundstone, in shell-sand (Dr. Alcock); Lough Swilly (G.S.B.); off Great Skellig in Kerry, Antrim coast and Belfast Lough (S.M.M.).

Genus 2.—**Polycopsis**, G. W. Müller.

- Polycopsis compressa**, Brady and Robertson.—On an oyster bed in Clifden Bay, in 4-6 fathoms (B. & R.).

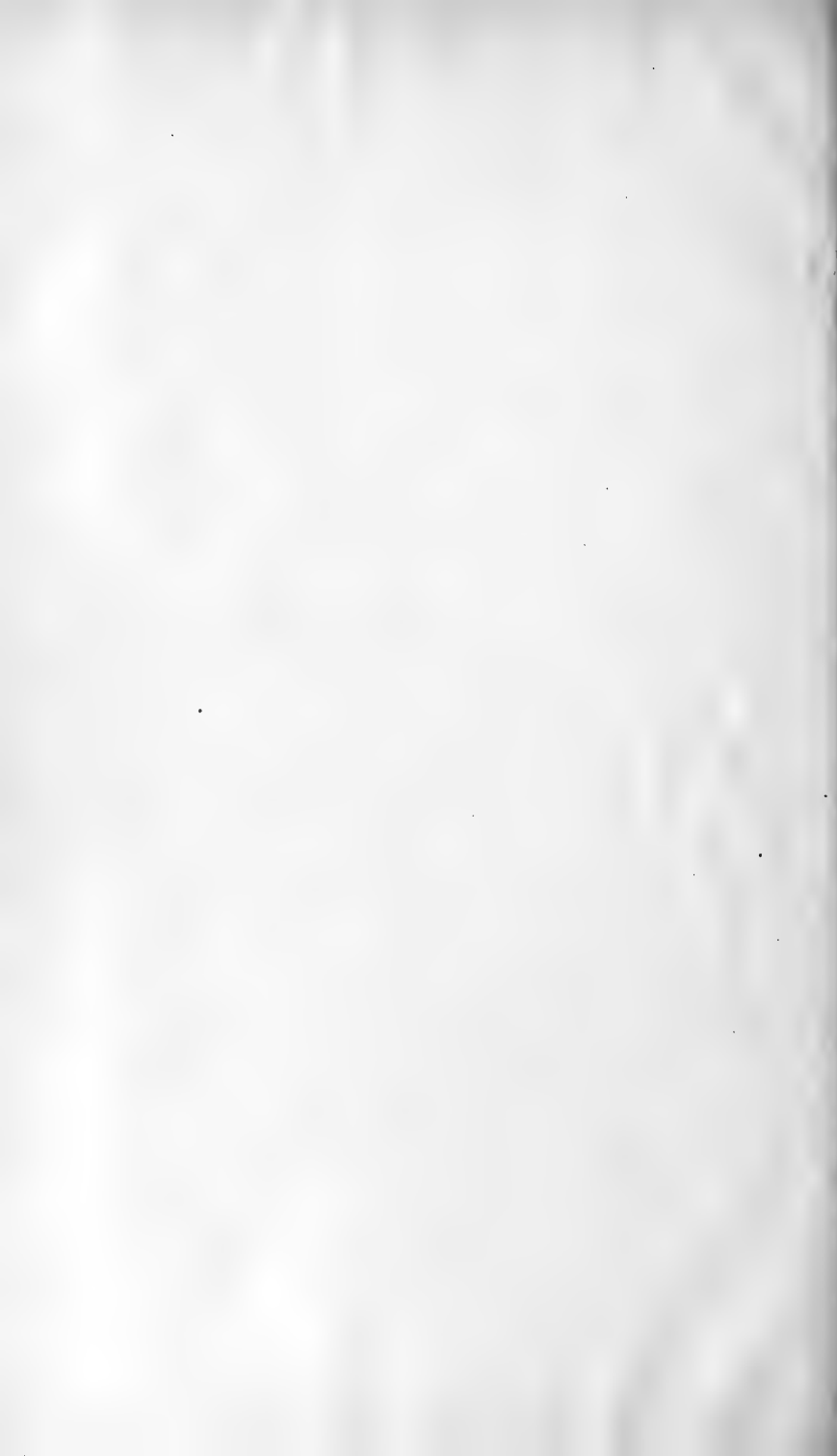
Section IV.—PLATYCOPA.

Genus 1.—**Cytherella**, Bosquet.

- Cytherella abyssorum**, G. O. Sars.—Malcomson records this under the name *C. scotica*, Brady, as taken in 60 fathoms, four miles east of the Gobbins, on the coast of Antrim.
- C. serrulata**, Brady and Norman.—Two valves in the “Porcupine,” dredging from 1,366 fathoms west of Donegal Bay (Station 19).
Berkhamsted, Herts.

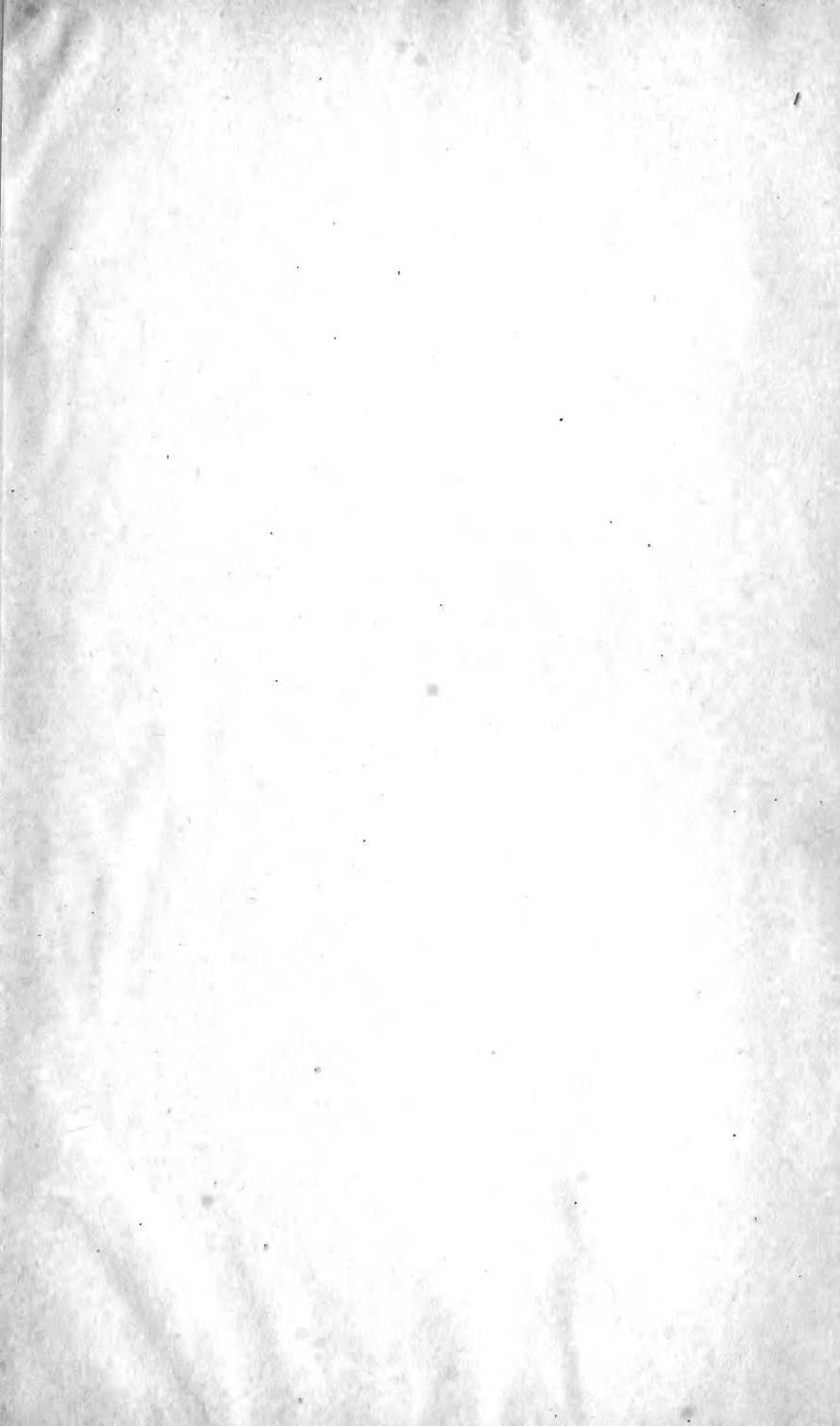


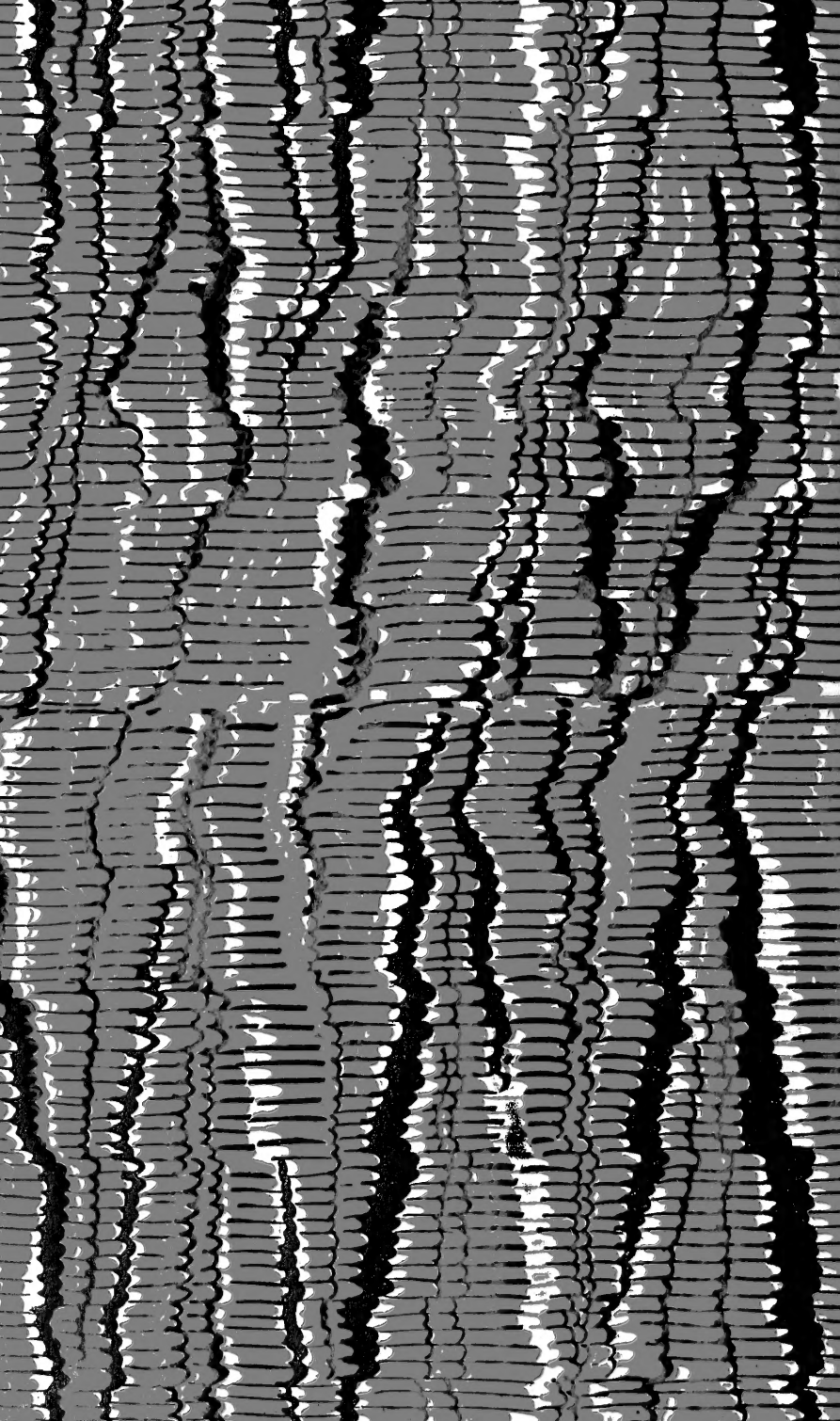
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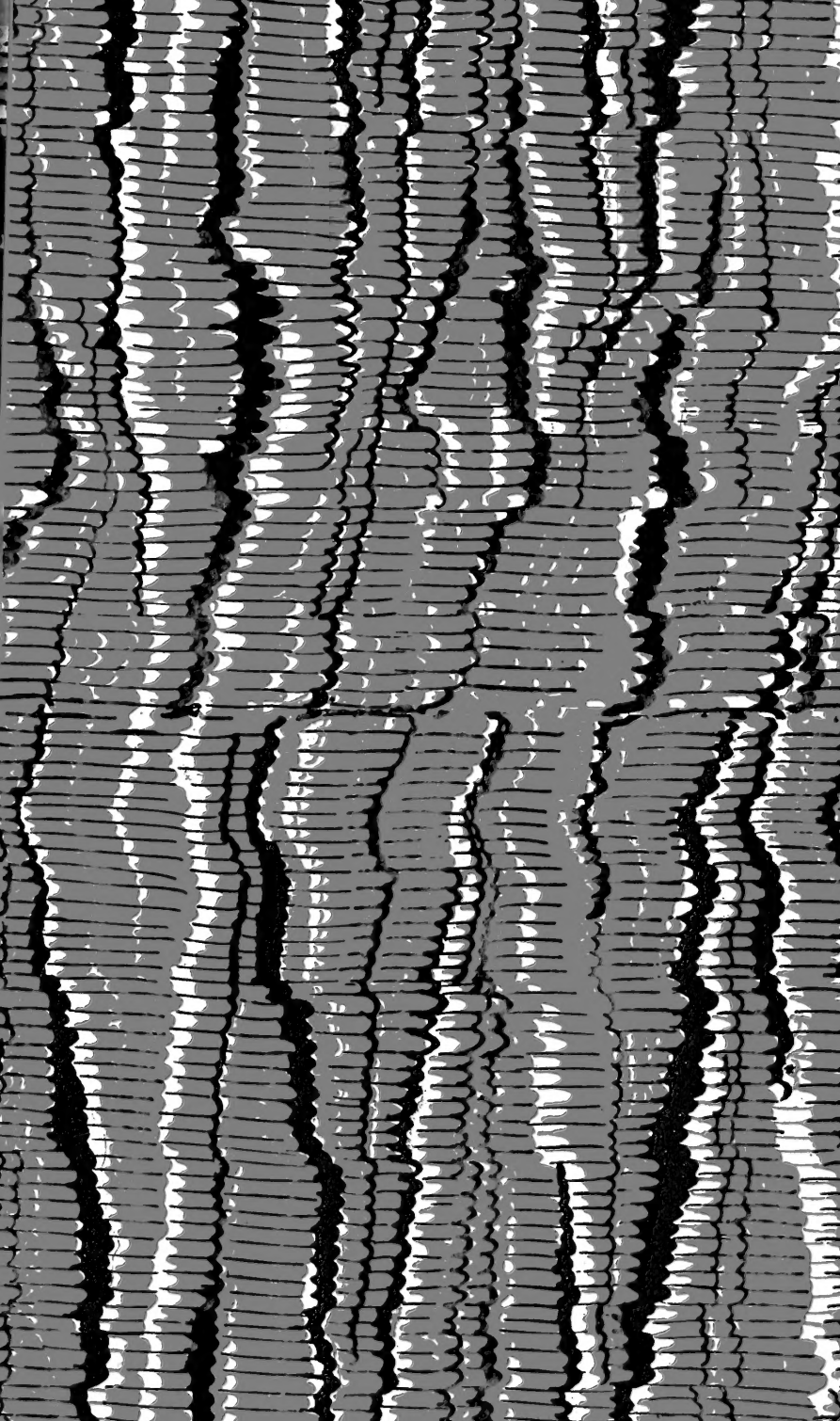












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